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## Chapter 8

### CRITERIA FOR SUCCESS

The Lower Columbia Steelhead Conservation Initiative (LCSCI) is intended to provide the context, rationale, and conservation measures needed for wild steelhead to be protected and restored in the lower Columbia River. This is consistent with Washington's draft salmon strategy, which is to "*restore healthy salmon, steelhead, and trout populations and improve those habitats on which the fish rely.*" The purpose of this chapter is to address and define success in the context of the LCSCI and state salmon strategy.

The term "healthy" can be difficult to firmly define depending on one's perspective, values, and the scale of interest. For the LCSCI, a healthy stock is defined as one "that is experiencing production levels consistent with its available habitat and within the natural variations in survival for the stock" (WDF et al. 1993; Appendix 2). This does not imply that the habitat or ecosystem in which a healthy stock resides is itself "healthy." In any case, stock health would be difficult to achieve in degraded watersheds that are not in the process of being restored.

Currently, the health of most steelhead stocks in the LCSCI area is determined by monitoring the extent to which trends in the status of individual stocks achieve maximum sustainable yield (MSY) spawner escapement goals (see Appendix 2 for escapement goals and trends). The emphasis here is on restoring and sustaining the health of individual stocks, not just composites of stocks or ESUs.

The Wild Salmonid Policy offers two types of numerical guidelines to assist rebuilding of wild stocks and fisheries (WFWC 1997). First, as mentioned above, the WSP identifies the need to establish MSY escapement goals for fishery management purposes; these have been developed for wild steelhead in the LCSCI area. Secondly, the WSP contains minimum spawner abundance goals that are intended to protect against losses of genetic diversity, local adaptations, and to protect against heightened extinction risk that can occur when population sizes decline to low levels. The overarching rule used to determine minimum genetic escapement goals is 3,000 divided by the average age of the spawners for the stock in question. The 3,000 figure is intended to be calculated as the harmonic mean number of spawners. Using the harmonic mean rather than the simple arithmetic mean affords a conservation buffer against imprecision and uncertainty. For steelhead in the LCSCI area, the average age of spawners is generally four years for winter-run steelhead and five years for summer-run steelhead. Thus the minimum genetic spawner abundance goal (measured as the harmonic mean) for each wild steelhead stock in the LCSCI area would be 600 to 750 spawners. The WSP makes special provisions for stocks that historically existed in small streams and/or in small numbers. In those circumstances, stocks would be combined in the smallest localized aggregation that meets the abundance criteria.

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It is important to note that the minimum genetic spawner abundance goals will be less than the MSY goals established for fishery management purposes. Thus, stocks that achieve their larger MSY goal would be best assured of meeting minimum spawner abundance goals for genetic protection against extinction.

The minimum genetic abundance goals outlined in the WSP are sufficient to guard against extinction of individual stocks. The LCSCI proposes to apply these minimums as interim goals for recovery of wild steelhead in the LCSCI area. However, the scales of concern in an ESA context are ESUs, or groupings of stocks, not just the individual stock components. Healthy ESUs are those that are not in danger of extinction (not “endangered”), not likely to become so (not “threatened”), and whose status is not uncertain or at risk and not warranting listing (not “candidate”).

At this time working guidance is not available from NMFS regarding establishment of numerical recovery goals and delisting criteria in conservation plans. Further discussion and analysis is needed to develop recovery and delisting objectives that fully take into account the dynamics and distributions of individual stocks in a multi-stock ESU context.

Ultimately, the goal of Washington’s salmon strategy and conservation efforts for watershed and fish restoration is to protect and restore healthy, functioning ecosystems having stocks of fish whose abundance trends will allow fisheries on wild stocks to again occur. This goal will require achieving wild stock abundance levels above the extinction thresholds of interest to NMFS under the ESA, or the minimum genetic abundance goals of the WSP.

Healthy ecosystems are demonstrated when monitoring of habitat conditions confirms that key indicators are showing high quality ecosystem function, such as water quality that complies with state and federal standards and fully supports designated uses.

Finally, the formula for long term success of Washington’s salmon strategy and regional plans like the LCSCI must include not only the biological health of the state’s salmonid resources, but also other social and economic needs of the state’s citizens, both now and in the future.